Remarks/Arguments

Reconsideration of this application is requested.

Extension of Time

A request for a three month extension of the period for response to the office action mailed on November 4, 2005 is enclosed. The extended period for response expires on May 4, 2006.

Claim Status

Claims 1-20 are pending

Claim Objections

Claims 7 and 16 are amended as suggested by the Action to correct informalities.

Claim Rejections – 35 USC 102

Claims 1-8 and 12-20 are rejected under 35 USC 102(e) as anticipated by Tanaka (US 6,564,256). Claims 9-11 are rejected under 35 USC 102(e) as anticipated by Joffe (US 6,801,341). Neither Tanaka nor Joffe discloses or appreciates the fundamental features of the present invention.

According to the present invention, a TCP/IP connection is established following a login demand from a network device 11 (or 12, etc.) in a local system to a relay server 4 (or 5, etc.). Once established, this TCP/IP connection is held or maintained. As described in paragraph 0040, with reference to Figure 3, once the TCP/IP connection with relay server 4 is established, network device 11 periodically transmits to relay server 4 a command to hold the connection, receives a confirmation response from relay server 4, and the connection is thereby held. By using this held TCP/IP connection, communications between the relay server and network device can be carried out in both directions without interference by a firewall or the like in gateway 13.

In the prior art, when a relay server 4 attempts to transmit data to a network device 11 in a local system, the communication will be blocked by the gateway 13. This is due to the fact that the gateway 13 generally rejects access from outside the

local system. The present invention, by contrast, takes advantage of the fact that the gateway permits access from the inside to the outside. A login demand is allowed to pass from device 11 to relay server 4 to establish a connection. Device 11 then holds or maintains the established connection with relay server 4 so that communications can pass unhindered in both directions between relay server 4 and network device 11 over the held connection.

Using its held connection with relay server 4, network device 11 may demand a connection for communication with another network device. However, that network device (e.g. network device 21) may be in another local system and connected with another relay server 5 (via a held connection with server 5 established and maintained in the same manner as the held connection between server 4 and network device 11). According to the present invention, the relay servers exchange information, which is stored in "connection information holding means", identifying the network devices with whom they have held connections. In this manner, relay server 4 determines that relay server 5 has a held connection with network device 21, and is thus able to relay the connection demand from network device 11 to network device 21 via relay server 5 and its held connection with network device 21. In this manner, by combining, respectively, the held connection between network device 11 and relay server 4; the connection between relay server 4 and relay server 5; and the held connection between relay server 5 and network device 21, a "virtual" direct connection is established between network devices 11 and 21 for unhindered two-way communication, despite the fact that they reside in different local systems and are connected to different relay servers.

Independent claims 1, 3, 5-9, 12, 15 and 18 are amended to emphasize this distinguishing aspect. Another aspect of the invention, included in claims 5-8, is that when a connection status changes, i.e., such as when a new network device establishes a connection with a relay server, or when a network device is disconnected, the relay server updates or "renews" this connection information and provides the renewed information to the other relay servers so that their records

can be updated as well. Likewise, the relay server receives updated or renewed information from the other relay servers.

Tanaka, cited against claims 1-8 and 12-20, is directed to an image transfer system using the DICOM (Digital Imaging and Communication in Medicine) protocol. Tanaka's system includes terminals T1...Tn, relay servers P1 and P2, archiver 1 and database 2. The system operates as follows: a terminal T1 submits a request for a desired piece of medical image data to relay server P1 Relay server P1 obtains the image data from archiver 1, stores it in cache C1 and also transfers it to the requesting terminal T1. If the desired medical image data was not stored in archiver 1, relay server P1 sends a request for the image data to database 2. The database 2 transfers the image data to server P1, which stores it in cache C1 and also transfers it to terminal T1. If another terminal T2 requests the same image data from server P1, server P1 can retrieve it from its cache and thereby transfer it to T2 more quickly. Further, server P1 can communicate with other servers P2, etc.

In this manner, Tanaka reduces data traffic and increases transfer speed. However, Tanaka has nothing to do with communications between the terminal devices T1...Tn themselves. There is certainly no disclosure, as is required by the amended claims, that Tanaka's terminals T1...Tn establish and hold TCP/IP connections with the relay servers, and that one terminal T1 communicates with another terminal Tn via these held connections and the connections between the relay servers. There is no disclosure at all in Tanaka of any communications between the terminals themselves. Furthermore, there is no disclosure that each of the relay servers stores information about its connections to client devices, and provides this information as well as connection updates to the other relay servers. In Tanaka, the terminals communicate solely with the relay servers in order to obtain image data stored somewhere on the network, whether it be in the database, the archive, or the cache of one of the relay servers.

Joffe is similarly deficient. Fax machines 32 and 70 communicate with each other over an IP network 46, and within that IP network there is a fax relay server

50. However, there is absolutely no disclosure in Joffe that relay server 50 establishes and holds connections with each of fax machines 32 and 70 at the request of fax machines 32 and 70. Moreover, the Action equates Joffe's mail server 74 with applicant's requirement of additional relay servers. However, it is clear that there is no established and held connection between email recipient 78 and mail server 74, *at the initiative of email recipient 78*, as would be required for any analogy to applicant's claims.

Since Tanaka does not disclose each and every element of claims 1-8 and 12-20, and since Joffe does not disclose each and every element of claims 9-11, the rejections of those claims under 35 USC 102(b) must be withdrawn.

Conclusion

This application is now believed to be in condition for allowance. The Examiner is invited to telephone the undersigned to discuss any issues that remain after entry of this amendment. Any fees due with this response may be charged to our Deposit Account No. 50-1314.

Respectfully submitted,
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